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completeness and different perspectives. Then there should be a central bureau as planned by the Royal Society, which would send out promptly a card catalogue giving all the titles and also references to reviews and abstracts (at least in certain standard journals), as they appear. The slips giving data regarding reviews and abstracts would, of course, refer to the article abstracted, and should, perhaps, be printed on narrow and thin slips which could be pasted on the original cards. If the abstracts in question are by competent men of science, it would be an advantage if an opinion were expressed in regard to the importance of the work reviewed, whether it is a compilation or an original research, etc. If this were done by some uniform system it could be carried over to the slip by a symbol, as a letter or a single word.

We are undertaking to carry out this plan for psychology in the Psychological Laboratory of Columbia University, but it has, of course, only local usefulness so long as the Index is not published. We have a card catalogue of psychological literature, and the card indicates whether the publication can be found in the University Library and if not the most accessible library in which it can be found. It is proposed to add references to abstracts and reviews, as far at least as they are contained in the *Zeitschrift für Psychologie* and the *Psychological Review*, and to indicate the character and value of the publication. To learn the contents it is only necessary to turn to a journal within arm's reach.

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NOTES ON INORGANIC CHEMISTRY.

THE investigations of Professor K. A. Hofmann have shown the decided analogies which exist between hydroxylamin NH_2OH and water especially in possessing both a basic and an acidic nature. The basic nature lies in the tendency of the amido group to form an ammonium group, while the acidic nature rests in the hydroxyl group, in which the hydrogen atom is in derivatives replaceable by a metal. A new analogy between hydroxylamin and water is now shown by Rudolf Uhlenhuth in Liebig's *Annalen*. When hydroxylamin is added to a concentrated solution of nickel sulfate,

a red crystalline precipitate is formed, which has the formula $\text{NiSO}_4 \cdot 6\text{NH}_2\text{OH}$. This would be ordinarily considered hydroxylamin of crystallization. Nickel sulfate, however, crystallizes as many other vitriols with $7\text{H}_2\text{O}$. According to Werner's hypothesis one of these water molecules is united chemically with the SO_4 , while the other six are coördinated with the nickel atom. Now the hydroxylamin could not be thus united with the SO_4 , hence we find only six molecules present. This would seem to add another to the not long list of substances such as water, ammonia, etc., which can be coördinated with the metallic atoms.

Practical use is being made of the high temperature developed by the reduction of metallic oxids by aluminum, as described by H. Goldschmidt in the *Zeitschrift für Electrochemie*. Carbon-free metals are readily obtained, as chromium for chrome steel and manganese for manganese bronze. Vanadium oxid is reduced by aluminum only to the suboxid V_2O , but columbium oxid is reduced to the metal. As a by-product in these reactions an artificial corundum is obtained which surpasses the natural emery as an abrasive. When a mixture of iron oxid and aluminum reacts, the temperature is intense but is very circumscribed, so that it can be used for many purposes, such as welding steel, where a high temperature is desired locally.

A CONTRIBUTION to the chemistry of matches has appeared in the *Bollettino chimico-farmaceutico* by Giovanni Craveri of Buenos Ayres. He suggests the replacement of phosphorus in matches by perthiocyanic acid $\text{H}_2\text{C}_2\text{N}_2\text{S}_3$, and claims that such matches are not poisonous nor explosive, strike on any surface and burn brightly. Perthiocyanic acid can be readily made from the by-products of several processes, such as the purification of coal gas or the Lebane soda manufacture, and already its cost is less than that of phosphorus. If the new matches prove all that is claimed for them, Craveri will be recognized as a benefactor of the human race.

THE paper by Sir William Crookes on victorium, a new element associated with yttrium, recently read before the Royal Society has been

printed in full in the *Chemical News*. The discovery of the element, to which at first the name monium was given, resulted from photographic researches on phosphorescent spectra, it giving a very characteristic group of lines in the ultra-violet. The concentration of victorium is accomplished first by the fractional decomposition of the mixed nitrates of the yttrium metals by heat. The nitrates of the earths of the cerium group decompose more readily, and those of the yttrium group less readily than that of victoria, so that after a large number of fractionations the victoria collects in the middle portions. These middle fractions are then submitted to fractional precipitation with oxalic acid, many times repeated, and finally the portions richest in victoria are converted into sulfates and fractionally precipitated with potassium sulfate. In the purest condition thus far obtained, victoria is a pale brown powder, less basic than yttria and more basic than most of the oxides of the terbia group. Assuming the oxide to be V_2O_3 , the atomic weight of victorium is about 117. The most marked characteristic of victoria is its spectrum.

J. L. H.

ZOOLOGICAL NOTES.

IN the annals of the South African Museum, Mr. L. Péringuey describes a method, discovered by Rev. J. A. O'Neil, for capturing both sexes of the members of the hymenopterous genus *Mutilla*. By seizing the female in such a way as to induce her to produce her well-known stridulation, the males immediately appear and are easily secured, at times even settling on the hand of the captor. As the sexes are certainly known in but 16 out of the 169 South African species, the practice of this 'sembling' method, as it is styled, is to be recommended.

THE report of the Australian Museum for 1897 records the mounting of a specimen of the Galapagos tortoise *Testudo nigrita* brought to Sydney, New South Wales, by the American whaler *Winslow*, in 1853. At that time it weighed 53 pounds, while at the time of its death, in 1896, its weight had increased to 368 pounds, a more rapid rate of growth than such animals are usually credited with.

ACCORDING to Mr. Etheridge of the Colombo, Ceylon, Museum, by far the largest cobra ever recorded is one measuring 7 feet 9 inches taken at Jaffna, but as the measurement was made on a skin, it is possible that the maximum length attained by this deadly snake is not far from 7 feet 6 inches.

MR. ETHERIDGE discusses the use of formol at some length, stating that its great fault is its bleaching property, and that pure glycerine can alone be trusted to keep color, because it excludes those great destroyers of animal colors, air and water. Formol in combination with various salts will preserve color for a greater or less length of time, but not permanently. Thus a three per cent. solution of formol, saturated with common salt, preserved the color of *Oreastes turitus* for about eighteen months, and then the specimen faded completely in a few days. Epsom salt in combination has the curious property of keeping the fugitive blues, greens and violets of the wrasses for at least a year, although destructive to the colors of other fishes.

IT will doubtless surprise many to be told that the mastodon is far more common in American museums than is the African elephant. The skeleton of Jumbo in the Am. Mus. Nat. Hist., New York City, is almost the only specimen of this animal in the country, while there are at least ten mounted skeletons of mastodon and teeth and bones without number. It is not too much to say that not a week elapses without some published account of the discovery of mastodon remains and while most of the specimens are poorly preserved, or consist only of individual teeth, yet in the aggregate their number is very considerable. Orange and Ulster counties, N. Y., appear to have been favorite burying places for the mastodon, and from the character of the ground it is evident that many specimens will yet come to light from these localities.

F. A. L.

SCIENTIFIC NOTES AND NEWS.

THE Astronomical and Astrophysical Society of America, which, as we have already stated, was recently established at the third Conference of Astronomers and Astrophysicists held at the